



ELECTRONIC INFORMATION DISCLOSURE STATEMENT

Electronic Version v18
Stylesheet Version v18.0

Title of
Invention

NON-CONTACT METHODS FOR MEASURING
ELECTRICAL THICKNESS AND DETERMINING
NITROGEN CONTENT OF INSULATING FILMS

Application Number: 10/698222



Confirmation Number: 1492

First Named Applicant: Jianou Shi

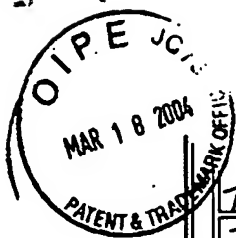
Attorney Docket Number: 5589-06800

Search string: (4015203 or 5767691 or 5485091 or 6097196
or 6202029 or 5594247 or 5644223 or 5767693
or 4599558 or 4812756 or 5650731 or 5661408
or 5742658 or 5852232 or 5866806 or 5948972
or 5955661 or 6011404 or 6191605 or 6267005
or 5773989 or 6569691 or 3495269 or 3496352
or 4734721 or 5834941 or 6060709 or 6072320
or 6091257 or 6104206 or 6121783 or 6201999
or 6224638 or 20020090746).pn.

US Patent Documents

Note: Applicant is not required to submit a paper copy of cited US Patent Documents

Init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
TL	1	4015203	1977-03-29	Verkuil	—	324	236
TL	2	5767691	1998-06-16	Verkuil	—	324	761
TL	3	5485091	1996-01-16	Verkuil	—	324	455
TL	4	6097196	2000-08-01	Verkuil et al.	—	324	750
TL	5	6202029	2001-03-13	Verkuil et al.	—	702	64
TL	6	5594247	1997-01-14	Verkuil et al.	—	250	326
TL	7	5644223	1997-07-01	Verkuil	—	324	158.1
TL	8	5767693	1998-06-16	Verkuil	—	324	767
TL	9	4599558	1986-07-08	Castellano et al.	—	324	752
TL	10	4812756	1989-03-14	Curtis et al.	—	324	750
TL	11	5650731	1997-07-22	Fung	—	324	752
TL	12	5661408	1997-08-26	Kamieniecki et al.	—	324	765



TL	13	5742658	1998-04-21	Tiffin et al.	—	378	44
TL	14	5852232	1998-12-22	Samsavar et al.	—	73	105
TL	15	5866806	1999-02-02	Samsavar et al.	—	73	105
TL	16	5948972	1999-09-07	Samsavar et al.	—	73	105
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TL	18	6011404	2000-01-04	Ma et al.	—	324	765
TL	19	6191605	2001-02-20	Miller et al.	—	324	767
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TL	23	3495269	1970-02-10	Mutschler et al.	—	347	126
TL	24	3496352	1970-02-17	Jugle	—	399	100
TL	25	4734721	1988-03-29	Boyer et al.	—	347	126
TL	26	5834941	1998-11-10	Verkuil	—	324	455
TL	27	6060709	2000-05-09	Verkuil et al.	—	250	326
TL	28	6072320	2000-06-06	Verkuil	—	324	750
TL	29	6091257	2000-07-18	Verkuil et al.	—	324	765
TL	30	6104206	2000-08-15	Verkuil	—	324	765
TL	31	6121783	2000-09-19	Horner et al.	—	324	757
TL	32	6201999	2001-03-13	Jevtic	—	700	100
TL	33	6224638	2001-05-01	Jevtic et al.	—	29	25.01

US Published Applications

Note: Applicant is not required to submit a paper copy of cited US Published Applications

init	Cite.No.	Pub. No.	Date	Applicant	Kind	Class	Subclass
TL	1	20020090746	2002-07-11	Xu et al.	—	—	—

Signature

Examiner Name	Date
<i>Cearny</i>	3/24/05

Form PTO-1449 (modified) List of Patents and Publications For Applicant's Information Disclosure Statement (Use several sheets if necessary)	ATTY. DKT. NO. 5589-06800	SERIAL NO. 10/698,222
	APPLICANT: Shi et al.	GROUP: Unknown
	FILING DATE: October 31, 2003	

U.S. PATENT DOCUMENTS

EXAM. INITIALS	REF. DES.	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE

FOREIGN PATENT DOCUMENTS

EXAM. INITIALS	REF. DES.	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES/NO
TL	A1	98/57358	1998-12-17	WO	—	—	—

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

TL	A2	Cosway et al., "Manufacturing Implementation of Corona Oxide Silicon (COS) Systems for Diffusion Furnace Contamination Monitoring," 1997 IEEE/SEMI Advanced Semiconductor Manufacturing Conference, pp. 98-102.					
TL	A3	Miller, "A New Approach for Measuring Oxide Thickness," Semiconductor International, July 1995, pp. 147-148.					
TL	A4	Numerical Recipes in C, The Art of Scientific Computing, 2nd Ed., © Cambridge University Press 1988, 1992, p. 683.					
TL	A5	Weinberg, "Tunneling of Electrons from Si into Thermally Grown SiO ₂ ," Solid-State Electronics, 1977, Vol. 20, pp. 11-18.					
TL	A6	Verkuil, "Rapid Contactless Method for Measuring Fixed Oxide Charge Associated with Silicon Processing," IBM Technical Disclosure Bulletin, Vol. 24, No. 6, 1981, pp. 3048-3053.					
TL	A7	"Contactless Photovoltage vs. Bias Method for Determining Flat-Band Voltage," IBM Technical Disclosure Bulletin, Vol. 32, Vol. 9A, 1990, pp. 14-17.					
TL	A8	"Contactless Electrical Equivalent Oxide Thickness Measurement," IBM Technical Disclosure Bulletin, Vol. 29, No. 10, 1987, pp. 4622-4623.					
TL	A9	Diebold et al., "Characterization and production metrology of thin transistor gate oxide films," Materials Science in Semiconductor Processing 2, 1999, pp. 103-147.					
TL	A10	Comizzoli, "Uses of Corona Discharges in the Semiconductor Industry," J. Electrochem. Soc., 1987, pp. 424-429.					
	A11	Weinzierl et al., "Non-Contact Corona-Based Process Control Measurements: Where We've Been, Where We're Headed," Electrochemical Society Proceedings, Vol. 99-16, pp. 342-350.					
TL	A12	Verkuil et al., "A Contactless Alternative to MOS Charge Measurements by Means of a Corona-Oxide-Semiconductor (COS) Technique," Electrochem. Soc. Extended Abstracts, 1988, Vol. 88-1, No. 169, pp. 261-262.					

EXAMINER:

DATE CONSIDERED:

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the patent owner.

Information Disclosure Statement—PTO 1449 (modified)